

## **Precession and Nutation in Eta Carinae**

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Although the overall shape of the X-ray light curve of Eta Carinae can be explained by the high eccentricity of the binary orbit, other features like the asymmetry near periastron passage and the short quasi-periodic oscillations seen at those epochs, have not yet been accounted for. We explain these features assuming that the rotation axis of Eta Carinae is not perpendicular to the orbital plane of the binary system. As a consequence, the companion star will face Eta Carinae on the orbital plane at different latitudes for different orbital phases and, since both the mass loss rate and the wind velocity are latitude dependent, they would produce the observed asymmetries in the X-ray flux. We were able to reproduce the main features of the X-ray light curve assuming that the rotation axis of Eta Carinae forms an angle of 29 degrees with the axis of the binary orbit. We also explained the short quasi-periodic oscillations by assuming nutation of the rotation axis, with amplitude of about 5 degrees and period of about 22 days. The nutation parameters, as well as the precession of the apsis, with a period of about 274 years, are consistent with what is expected from the torques induced by the companion star.